

In the Claims

Claims remaining in the application are as follows:

1. (Original): A storage system comprising:
a storage array containing a plurality of storage devices of at least three types and
having a respective class hierarchy; and
a controller coupled to the storage device hierarchy and capable of executing an
hierarchical storage management capability that selectively controls access to
the hierarchy of storage devices.
2. (Original): The storage device according to Claim 1 wherein:
the storage array contains an hierarchy of storage devices of at least three types and
having a respective performance hierarchy.
3. (Original): The storage device according to Claim 1 further comprising:
the storage array contains an hierarchy of storage devices of at least three types and
having a respective economic or cost hierarchy.
4. (Original): The storage device according to Claim 1 further comprising:
a solid state cache and shared memory supplying storage for a level of hierarchical
storage.
5. (Original): The storage device according to Claim 1 further comprising:
relatively higher performance Small Computer Systems Interface (SCSI) and/or Fibre
Channel (FC) storage devices supplying storage for a level of hierarchical
storage.
6. (Original): The storage device according to Claim 1 further comprising:
relatively lower performance Serial AT-attached (SATA) storage devices supplying
storage for a level of hierarchical storage.

7. (Original): The storage device according to Claim 1 further comprising:
a solid state cache and shared memory supplying storage for a first level of
hierarchical storage;
relatively higher performance Small Computer Systems Interface (SCSI) and/or Fibre
Channel (FC) storage devices supplying storage for a second level of
hierarchical storage;
relatively lower performance Serial AT-attached (SATA) storage devices supplying
storage for a level of hierarchical storage; and
a process executable in the controller allocates storage capacity of the SATA storage
devices to low access customer data and to short-term and unpredictable
storage usage.

8. (Original): The storage device according to Claim 7 further comprising:
an hierarchical storage management controller for usage within a disk array utilizing
Fibre Channel (FC) and SATA disk drives and that allocates SATA storage as
uncommitted and unstructured storage.

9. (Original): The storage device according to Claim 7 further comprising:
an hierarchical storage management controller for usage within a disk array utilizing
Fibre Channel (FC) and SATA disk drives and that allocates SATA storage
for intra-array and/or inter-array data transfers including logical unit (LUN)
copies and snapshots.

10. (Original): A method of managing information storage in a storage system
comprising:

enclosing an hierarchy of storage devices of at least three types and having a
respective class hierarchy within a storage array; and
selectively controlling information access to the hierarchy of storage devices within
the storage array.

11. (Original): The method according to Claim 10 further comprising:
coupling an hierarchy of storage devices into the storage array including at least three
types having a respective performance hierarchy.

12. (Original): The method according to Claim 10 further comprising:
coupling an hierarchy of storage devices into the storage array including at least three
types having a respective economic or cost hierarchy.
13. (Original): The method according to Claim 10 further comprising:
combining an hierarchy of storage devices into the storage array including at least a
volatile shared memory, a relatively higher performance non-volatile storage,
and a relatively lower performance non-volatile storage.
14. (Original): The method according to Claim 10 further comprising:
combining an hierarchy of storage devices into the storage array including at least a
solid state cache and shared memory supplying storage for a first level of
hierarchical storage, relatively higher performance Small Computer Systems
Interface (SCSI) and/or Fibre Channel (FC) storage devices supplying storage
for a second level of hierarchical storage, and relatively lower performance
Serial AT-attached (SATA) storage devices supplying storage for a level of
hierarchical storage.
15. (Original): The method according to Claim 14 further comprising:
allocating storage capacity of the SATA storage devices to low access customer data
and to short-term and unpredictable storage usage.
16. (Original): The method according to Claim 14 further comprising:
allocating SATA storage as uncommitted and unstructured storage.
17. (Original): The method according to Claim 14 further comprising:
allocating SATA storage for intra-array and/or inter-array data transfers including
logical unit (LUN) copies and snapshots.
18. (Original): A storage system comprising:
a disk array containing an hierarchy of storage disks of at least two types and having
a respective class hierarchy; and

a controller coupled to the disk array and capable of executing an hierarchical storage management capability that selectively controls access to the hierarchy of storage disks.

19. (Original): The storage system according to Claim 18 further comprising: a cache memory coupled to the controller and operable as an additional storage in the class hierarchy.

20. (Original): The storage system according to Claim 18 further comprising: an hierarchy of storage devices having a respective performance hierarchy.

21. (Original): The storage system according to Claim 18 further comprising: an hierarchy of storage devices having a respective economic or cost hierarchy.

22. (Original): The storage system according to Claim 18 further comprising: a cabinet enclosing the disk array and the controller.

23. (Original): The storage system according to Claim 18 further comprising: relatively higher performance Small Computer Systems Interface (SCSI) and/or Fibre Channel (FC) disks supplying storage for a first level of hierarchical storage; relatively lower performance Serial AT-attached (SATA) disks supplying storage for a level of hierarchical storage; and a process executable in the controller allocates storage capacity of the SATA disks to low access customer data and to short-term and unpredictable storage usage.

24. (Original): An article of manufacture comprising:
a controller usable medium having a computable readable program code embodied therein for managing a storage system, the computable readable program code further comprising:
a code capable of causing the controller to intercommunicate among an hierarchy of storage devices of at least three types and having a respective class hierarchy within a storage array; and
a code capable of causing the controller to selectively control information access to the hierarchy of storage devices within the storage array.

25. (Original): A storage system comprising:
means for coupling an hierarchy of storage devices of at least three types and having
a respective class hierarchy within a storage array; and
means for selectively controlling information access to the hierarchy of storage
devices within the storage array.